

DESCRIPTION OF THE COURSE OF STUDY

Course code	0511-2BIO-BC13-M	
Name of the course in	Polish	Mikrobiologia
	English	Microbiology

1. LOCATION OF THE COURSE OF STUDY WITHIN THE SYSTEM OF STUDIES

1.1. Field of study	Biology
1.2. Mode of study	Full-time studies
1.3. Level of study	First-cycle studies
1.4. Profile of study*	General academic
1.5. Person/s preparing the course description	dr Katarzyna Durlik-Popińska dr Grzegorz Czerwonka
1.6. Contact	kdurlik@ujk.edu.pl gczewonka@ujk.edu.pl

2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

2.1. Language of instruction	English
2.2. Prerequisites*	-

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes	lectures, classes	
3.2. Place of classes	Classes in the teaching room of the UJK	
3.3. Form of assessment	Lecture - exam, laboratory exercises - credit with grade	
3.4. Teaching methods	Lecture, discussion, demonstration, independent experiments, project	
3.5. Bibliography	Required reading	Essential Microbiology, Stuart Hogg, September 2005, ISBN: 0 471 49754 1, John Wiley & Sons Inc.,
	Further reading	Merck Microbiology Manual 12th Edition, online

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED LEARNING OUTCOMES

4.1. Course objectives (including form of classes) Lectures <i>C1. Basic knowledge of the cell structure of microorganisms, biochemistry, physiology, including pathogenic factors.</i> <i>C2. Awareness of the application of the principles of safe work with microorganisms.</i> Classes <i>C1. Practical application of knowledge in the field of biochemical and physiological properties of bacteria in their identification by cultivation methods.</i> <i>C2. The ability to assess the risks of laboratory work on microbiological material.</i>
4.2. Detailed syllabus (including form of classes) Lectures - History of discoveries in the field of microbiology and definitions of terms: microbiology, microorganism, cultivation, microbiological media, clone, strain. - Classification of microbiological sciences. - Methods of sterilization and preparation of microbiological media. - Growth of bacteria, isolation and cultivation of microorganisms. - Techniques of preparation of microscopic slides. - Bacterial cell wall. Structure and function of capsule, bacterial flagella, fimbriae. - Bacterial nucleoid and mobile genetic elements. - Structure and classification of bacteriophages. Lytic and lysogenic cycle of bacteriophages. - Energy metabolism. - Pathogenicity of bacteria. - Bacteriocins and interactions between microorganisms. - Mechanism of action of antibiotics. Classes - Health and safety regulations in the microbiological laboratory. Methods of sterilization and disinfection, microbiological media. - Bacteriological culture methods.

3. Macroscopic morphology. Microscope Slides Preparation - Styles and Techniques. Staining of slides (part one).
4. The cell wall of microorganisms. Staining of slides (part two).
5. Biochemical properties of bacteria.
6. Bacterial energy metabolism.
7. Factors of bacterial virulence.
8. Determination of antimicrobial susceptibility.

4.3 Intended learning outcomes

Code	A student, who passed the course	Relation to learning outcomes
within the scope of KNOWLEDGE:		
W01	Student explains the scope of research topics of microbiology	BIO1A_W04
W02	Student explains the role of the elements of the cellular structure of bacteria	BIO1A_W05
W03	Student explains the strategies for obtaining energy by bacteria	BIO1A_W011
W04	Student describes the mechanisms of bacterial resistance to selected antibiotics	BIO1A_W04
W05	Student analyzes the mechanisms of pathogenesis	BIO1A_W07
within the scope of ABILITIES:		
U01	Student applies the principles of safe work with bacteria	BIO1A_U01
U02	Student determines the effect of antibiotics on bacteria	BIO1A_U02
U03	Student determines the morphological forms of bacteria on the basis of staining and microscopic observation	BIO1A_U06
U04	Student determines the basic biochemical properties of bacteria	BIO1A_U06
within the scope of SOCIAL COMPETENCE:		
K01	Student is aware importance of the application of the principles of safe work with microbiological material	BIO1A_K02
K02	Student is prepared to work actively in groups and able to communicate with people who are and are not specialists in a given field	BIO1A_K03

4.4. Methods of assessment of the intended learning outcomes

Teaching outcomes (code)	Method of assessment (+/-)																				
	Exam oral/written*			Test*			Project*			Effort in class*			Self-study*			Group work*			Others* e.g. standardized test used in e-learning		
	Form of classes			Form of classes			Form of classes			Form of classes			Form of classes			Form of classes			Form of classes		
	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...	L	C	..
W01	+				+																
W02	+				+																
W03	+																				
W04	+																				
W05	+																				
U01											+										
U02											+										
U03											+										
U04											+										
K01											+						+				
K02																	+				

*delete as appropriate

4.5. Criteria of assessment of the intended learning outcomes

Form of classes	Grade	Criterion of assessment
L C P S	3	Exam - test, 51-60% correct answers

	3,5	Exam - test, 61-70% correct answers
	4	Exam - test, 71-80% correct answers
	4,5	Exam - test, 81-90% correct answers
	5	Exam - test, 91-100% correct answers
classes (C) *	3	Credit with grade - test, 51-60% correct answers
	3,5	Credit with grade - test, 61-70% correct answers
	4	Credit with grade - test, 71-80% correct answers
	4,5	Credit with grade - 81-90% correct answers
	5	Credit with grade - test, 91-100% correct answers

5. BALANCE OF ECTS CREDITS – STUDENT'S WORK INPUT

Category	Student's workload	
	Full-time studies	Extramural studies
NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER /CONTACT HOURS/	75	
Participation in lectures*	29	
Participation in classes, seminars, laboratories*	44	
Preparation in the exam/ final test*	2	
INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/	75	
Preparation for the lecture*	10	
Preparation for the classes, seminars, laboratories*	20	
Preparation for the exam/test*	40	
Gathering materials for the project/Internet query*	5	
Preparation of multimedia presentation	0	
Others *	0	
TOTAL NUMBER OF HOURS	150	
ECTS credits for the course of study	6	

*delete as appropriate

Accepted for execution (date and legible signatures of the teachers running the course in the given academic year)

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